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VULCAN LABORATORIES, INC.

408 Auburn Avenue
Pontiac, Michigan 48058

WATER ANALYSIS

No. 3565

Date Aug. 5, 1970

TO: Cerro Brass & Copper
E. St. Louis, Illinois

SOURCE OF SAMPLE: DeAerator - Over Flow

Total Hardness	(as $CaCO_3$)		ppm	Specific Conductance, Micromhos		590	
Calcium	(as $CaCO_3$)	164	ppm	Total Dissolved Solids		413	ppm
Magnesium	(as $CaCO_3$)		ppm	Iron	(as Fe)		ppm
P Alkalinity	(as $CaCO_3$)		ppm	Silica	(as SiO_2)		ppm
Total Alkalinity	(as $CaCO_3$)	192	ppm	Sulfates	(as SO_4)		ppm
Bicarbonates	(as $CaCO_3$)		ppm	Total Phosphates	(as PO_4)		ppm
Carbonates	(as $CaCO_3$)		ppm	Reverted Phosphate	(as PO_4)		ppm
Hydrates	(as $CaCO_3$)		ppm	Polyphosphate	(as PO_4)		ppm
Chlorides	(as NaCl)	48	ppm	Chromates	(as CrO_4)		ppm
pH		7.9		Sodium Chromate	(as Na_2CrO_4)		ppm
Chloride concentrations				Nitrite	(as $NaNO_2$)		ppm
Calcium concentrations				Sulfite	(as SO_3)		ppm

Respectfully submitted,

VULCAN LABORATORIES, INC.

T. A. McAllister

T. A. McAllister
Field Technical Director

cc: Kelly

C03329

VULCAN LABORATORIES, INC.

408 Auburn Avenue
Pontiac, Michigan 48058

WATER ANALYSIS

TO: Cerro Brass & Copper
E. St. Louis, Illinois

No. 3566

Date Aug. 5, 1970

SOURCE OF SAMPLE: Boiler No. 1

Total Hardness	(as $CaCO_3$)		ppm	Specific Conductance, Micromhos		2800	
Calcium	(as $CaCO_3$)		ppm	Total Dissolved Solids		2520	ppm
Magnesium	(as $CaCO_3$)		ppm	Iron	(as Fe)		ppm
P Alkalinity	(as $CaCO_3$)	556	ppm	Silica	(as SiO_2)		ppm
Total Alkalinity	(as $CaCO_3$)	928	ppm	Sulfates	(as SO_4)		ppm
Bicarbonates	(as $CaCO_3$)		ppm	Total Phosphates	(as PO_4)	-0-	ppm
Carbonates	(as $CaCO_3$)		ppm	Reverted Phosphate	(as PO_4)		ppm
Hydrates	(as $CaCO_3$)		ppm	Polyphosphate	(as PO_4)		ppm
Chlorides	(as NaCl)	328	ppm	Chromates	(as CrO_4)		ppm
pH		11.4		Sodium Chromate	(as Na_2CrO_4)		ppm
Chloride concentrations				Nitrite	(as $NaNO_2$)		ppm
Calcium concentrations				Sulfite	(as SO_3)	14	ppm

Respectfully submitted,

VULCAN LABORATORIES, INC.

T. A. McAllister

T. A. McAllister
Field Technical Director

cc: Kelly

C03330

VULCAN LABORATORIES, INC.

408 Auburn Avenue
Pontiac, Michigan 48058

WATER ANALYSIS

No. 3567

TO: Cerro Brass & Copper
E. St. Louis, Illinois

Date Aug. 5, 1970

SOURCE OF SAMPLE: Condensate-Far End

Total Hardness	(as $CaCO_3$)		ppm	Specific Conductance, Micromhos		37	
Calcium	(as $CaCO_3$)		ppm	Total Dissolved Solids		21	ppm
Magnesium	(as $CaCO_3$)		ppm	Iron	(as Fe)		ppm
P Alkalinity	(as $CaCO_3$)		ppm	Silica	(as SiO_2)		ppm
Total Alkalinity	(as $CaCO_3$)		ppm	Sulfates	(as SO_4)		ppm
Bicarbonates	(as $CaCO_3$)		ppm	Total Phosphates	(as PO_4)		ppm
Carbonates	(as $CaCO_3$)		ppm	Reverted Phosphate	(as PO_4)		ppm
Hydrates	(as $CaCO_3$)		ppm	Polyphosphate	(as PO_4)		ppm
Chlorides	(as NaCl)		ppm	Chromates	(as CrO_4)		ppm
pH		6.3		Sodium Chromate	(as Na_2CrO_4)		ppm
Chloride concentrations				Nitrite	(as $NaNO_2$)		ppm
Calcium concentrations				Sulfite	(as SO_3)		ppm

Respectfully submitted,

VULCAN LABORATORIES, INC.

T. A. McAllister

T. A. McAllister
Field Technical Director

cc: Kelly

C03331

VULCAN LABORATORIES, INC.

408 Auburn Avenue
Pontiac, Michigan 48058

WATER ANALYSIS

No. 3568

TO: Cerro Brass & Copper
E. St. Louis, Illinois

Date Aug. 5, 1970

SOURCE OF SAMPLE: Boiler No. 2

Total Hardness	(as $CaCO_3$)		ppm	Specific Conductance, Micromhos		2420	
Calcium	(as $CaCO_3$)		ppm	Total Dissolved Solids		2178	ppm
Magnesium	(as $CaCO_3$)		ppm	Iron	(as Fe)		ppm
P Alkalinity	(as $CaCO_3$)	568	ppm	Silica	(as SiO_2)		ppm
Total Alkalinity	(as $CaCO_3$)	880	ppm	Sulfates	(as SO_4)		ppm
Bicarbonates	(as $CaCO_3$)		ppm	Total Phosphates	(as PO_4)	-1-	ppm
Carbonates	(as $CaCO_3$)		ppm	Reverted Phosphate	(as PO_4)		ppm
Hydrates	(as $CaCO_3$)		ppm	Polyphosphate	(as PO_4)		ppm
Chlorides	(as NaCl)	232	ppm	Chromates	(as CrO_4)		ppm
pH		11.2		Sodium Chromate	(as Na_2CrO_4)		ppm
Chloride concentrations				Nitrite	(as $NaNO_2$)		ppm
Calcium concentrations				Sulfite	(as SO_3)	-4-	ppm

Respectfully submitted,

VULCAN LABORATORIES, INC.

T. A. McAllister
Field Technical Director

cc: Kelly

C03332

Vulcan LABORATORIES, INC.

408 Auburn Avenue
Pontiac, Michigan 48058

WATER ANALYSIS

No. 3569

TO: Cerro Brass & Copper
E. St. Louis, Illinois

Date Aug. 5, 1970

SOURCE OF SAMPLE: Make Up

Total Hardness	(as $CaCO_3$)	24	ppm	Specific Conductance, Micromhos		435	
Calcium	(as $CaCO_3$)	16	ppm	Total Dissolved Solids		304	ppm
Magnesium	(as $CaCO_3$)	-8-	ppm	Iron	(as Fe)	-0-	ppm
P Alkalinity	(as $CaCO_3$)	-4-	ppm	Silica	(as SiO_2)	1.5	ppm
Total Alkalinity	(as $CaCO_3$)	152	ppm	Sulfates	(as SO_4)	78	ppm
Bicarbonates	(as $CaCO_3$)		ppm	Total Phosphates	(as PO_4)		ppm
Carbonates	(as $CaCO_3$)		ppm	Reverted Phosphate	(as PO_4)		ppm
Hydrates	(as $CaCO_3$)		ppm	Polyphosphate	(as PO_4)		ppm
Chlorides	(as NaCl)	36	ppm	Chromates	(as CrO_4)		ppm
pH		8.3		Sodium Chromate	(as Na_2CrO_4)		ppm
Chloride concentrations				Nitrite	(as $NaNO_2$)		ppm
Calcium concentrations				Sulfite	(as SO_3)		ppm

Respectfully submitted,

VULCAN LABORATORIES, INC.

T. A. McAllister

T. A. McAllister
Field Technical Director

cc: Kelly

C03333

VULCAN LABORATORIES, INC.

408 Auburn Avenue
Pontiac, Michigan 48058

WATER ANALYSIS

No. 3570

TO: Cerro Brass & Copper
E. St. Louis, Illinois

Date Aug. 5, 1970

SOURCE OF SAMPLE: Feed Water

Total Hardness	(as $CaCO_3$)	20	ppm	Specific Conductance, Micromhos		435	
Calcium	(as $CaCO_3$)	-8-	ppm	Total Dissolved Solids		304	ppm
Magnesium	(as $CaCO_3$)	12	ppm	Iron	(as Fe)	-0-	ppm
P Alkalinity	(as $CaCO_3$)	-0-	ppm	Silica	(as SiO_2)	-1-	ppm
Total Alkalinity	(as $CaCO_3$)	140	ppm	Sulfates	(as SO_4)	72	ppm
Bicarbonates	(as $CaCO_3$)		ppm	Total Phosphates	(as PO_4)		ppm
Carbonates	(as $CaCO_3$)		ppm	Reverted Phosphate	(as PO_4)		ppm
Hydrates	(as $CaCO_3$)		ppm	Polyphosphate	(as PO_4)		ppm
Chlorides	(as NaCl)	36	ppm	Chromates	(as CrO_4)		ppm
pH		8.3		Sodium Chromate	(as Na_2CrO_4)		ppm
Chloride concentrations				Nitrite	(as $NaNO_2$)		ppm
Calcium concentrations				Sulfite	(as SO_3)		ppm

Respectfully submitted,

VULCAN LABORATORIES, INC.

T. A. McAllister

T. A. McAllister
Field Technical Director

cc: Kelly

C03334

VULCAN LABORATORIES, INC.

408 Auburn Avenue
Pontiac, Michigan 48058

WATER ANALYSIS

No. 3571

TO: Cerro Brass & Copper
E. St. Louis, Illinois

Date Aug. 5, 1970

SOURCE OF SAMPLE: Raw Water (Make Up)
City of E. St. Louis

Total Hardness	(as $CaCO_3$)	260	ppm	Specific Conductance, Micromhos		590	
Calcium	(as $CaCO_3$)	184	ppm	Total Dissolved Solids		413	ppm
Magnesium	(as $CaCO_3$)	76	ppm	Iron	(as Fe)	-0-	ppm
P Alkalinity	(as $CaCO_3$)		ppm	Silica	(as SiO_2)	-2-	ppm
Total Alkalinity	(as $CaCO_3$)	200	ppm	Sulfates	(as SO_4)	108	ppm
Bicarbonates	(as $CaCO_3$)		ppm	Total Phosphates	(as PO_4)		ppm
Carbonates	(as $CaCO_3$)		ppm	Reverted Phosphate	(as PO_4)		ppm
Hydrates	(as $CaCO_3$)		ppm	Polyphosphate	(as PO_4)		ppm
Chlorides	(as NaCl)	48	ppm	Chromates	(as CrO_4)		ppm
pH		7.5		Sodium Chromate	(as Na_2CrO_4)		ppm
Chloride concentrations				Nitrite	(as $NaNO_2$)		ppm
Calcium concentrations				Sulfite	(as SO_3)		ppm

Respectfully submitted,

VULCAN LABORATORIES, INC.

T. A. McAllister

T. A. McAllister
Field Technical Director

cc: Kelly

C03335

VULCAN LABORATORIES, INC.

408 Auburn Avenue
Pontiac, Michigan 48058

WATER ANALYSIS

No. 3572

TO: Cerro Brass & Copper
E. St. Louis, Illinois

Date Aug. 5, 1970

SOURCE OF SAMPLE: Raw Water (Make Up) Softened by Hungen

Total Hardness	(as $CaCO_3$)	-8-	ppm	Specific Conductance, Micromhos		650	
Calcium	(as $CaCO_3$)	-8-	ppm	Total Dissolved Solids		455	ppm
Magnesium	(as $CaCO_3$)	-0-	ppm	Iron	(as Fe)		ppm
P Alkalinity	(as $CaCO_3$)		ppm	Silica	(as SiO_2)		ppm
Total Alkalinity	(as $CaCO_3$)		ppm	Sulfates	(as SO_4)		ppm
Bicarbonates	(as $CaCO_3$)		ppm	Total Phosphates	(as PO_4)		ppm
Carbonates	(as $CaCO_3$)		ppm	Reverted Phosphate	(as PO_4)		ppm
Hydrates	(as $CaCO_3$)		ppm	Polyphosphate	(as PO_4)		ppm
Chlorides	(as NaCl)		ppm	Chromates	(as CrO_4)		ppm
pH		7.4		Sodium Chromate	(as Na_2CrO_4)		ppm
Chloride concentrations				Nitrite	(as $NaNO_2$)		ppm
Calcium concentrations				Sulfite	(as SO_3)		ppm

Respectfully submitted,

VULCAN LABORATORIES, INC.

T. A. McAllister

T. A. McAllister
Field Technical Director

cc: Kelly

C03336

VULCAN LABORATORIES, INC.

408 Auburn Avenue
Pontiac, Michigan 48058

WATER ANALYSIS

No. 3573

Date Aug. 5, 1970

TO: Cerro Brass & Copper
E. St. Louis, Illinois

SOURCE OF SAMPLE: Raw Water (Make Up) Softened by Elgin

Total Hardness	(as $CaCO_3$)	20	ppm	Specific Conductance, Micromhos		780	
Calcium	(as $CaCO_3$)	16	ppm	Total Dissolved Solids		556	ppm
Magnesium	(as $CaCO_3$)	-4-	ppm	Iron	(as Fe)		ppm
P Alkalinity	(as $CaCO_3$)		ppm	Silica	(as SiO_2)		ppm
Total Alkalinity	(as $CaCO_3$)		ppm	Sulfates	(as SO_4)		ppm
Bicarbonates	(as $CaCO_3$)		ppm	Total Phosphates	(as PO_4)		ppm
Carbonates	(as $CaCO_3$)		ppm	Reverted Phosphate	(as PO_4)		ppm
Hydrates	(as $CaCO_3$)		ppm	Polyphosphate	(as PO_4)		ppm
Chlorides	(as NaCl)		ppm	Chromates	(as CrO_4)		ppm
pH		7.9		Sodium Chromate	(as Na_2CrO_4)		ppm
Chloride concentrations				Nitrite	(as $NaNO_2$)		ppm
Calcium concentrations				Sulfite	(as SO_3)		ppm

Respectfully submitted,

VULCAN LABORATORIES, INC.

T. A. McAllister

T. A. McAllister
Field Technical Director

cc: Kelly

C03337